

Covington Woods Drainage Study
PER
Existing Conditions Result
Public Meeting



July 18, 2013

- Presentation (6:00-6:30)
 - Background and Objectives
 - Approach
 - Schedule
 - Existing Conditions Review
- Working Session (6:30-7:30)
 - Existing Conditions Review

- Assess Existing Drainage Infrastructure
- Identify System Deficiencies
- Recommend Improvement Alternatives

- Project Kickoff– 3/4/2013
- Existing Conditions Model –5/2/13
- **Existing Conditions Public Meeting – 7/18/13**
- Proposed Conditions Analysis–7/30/13
- Report - 9/11/13

- Overland Flow – Water flowing in the streets
- Rainfall Frequency – How frequent a specific rainfall event occurs
 - 2-Year – 50% Annual Chance
 - 10-Year – 10% Annual Chance
 - 100-Year – 1% Annual Chance
- Validation Event – Historical storm event compared to model output
- Ponding Duration – Amount of time stormwater is ponded in streets.

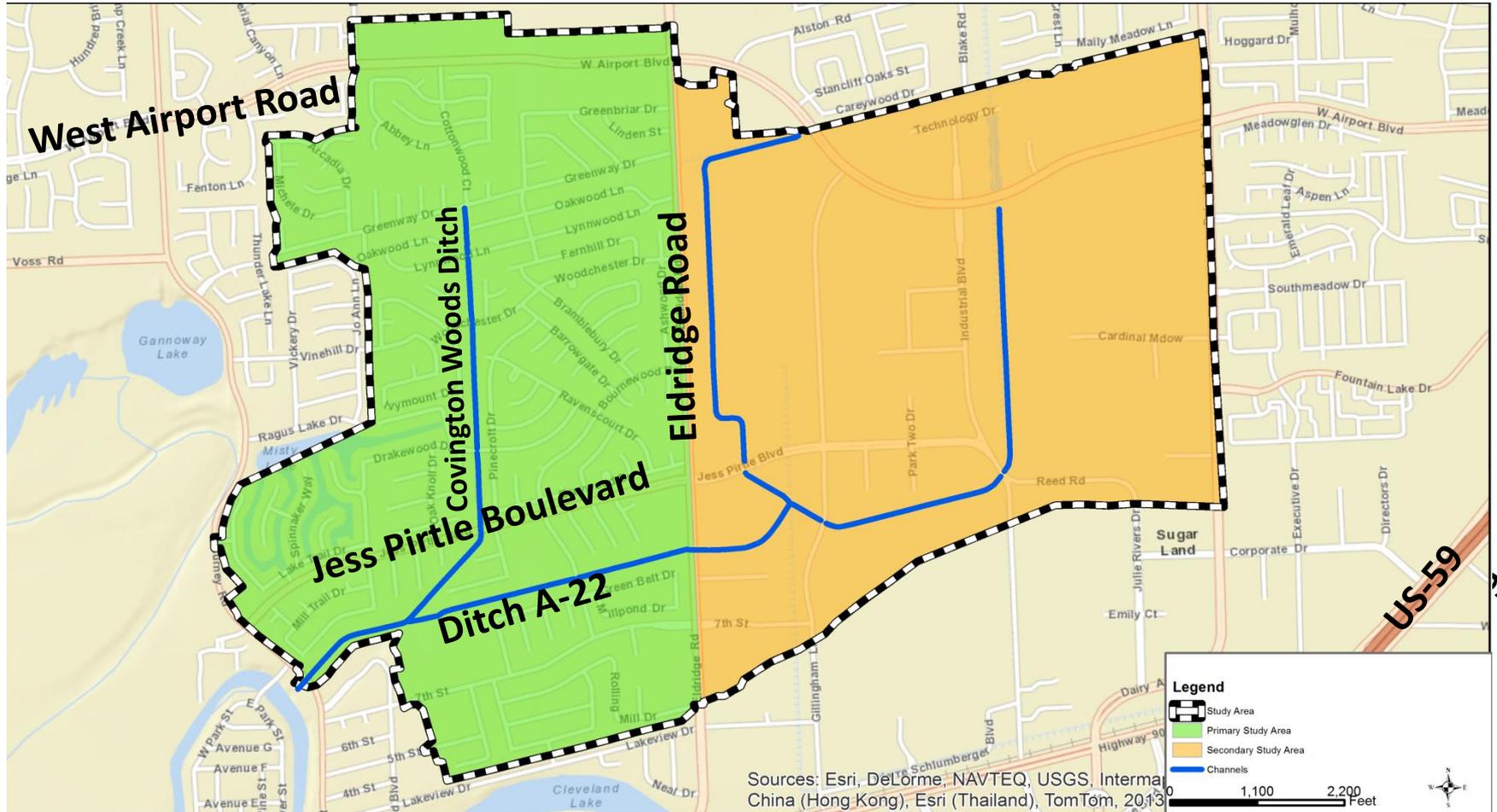
- Recent Significant Events
 - April 27, 2013 Storm Event (8” in 3 hours)
 - January 9, 2012 Storm Event (10.4” in 12 hours)
 - May 2012 Storm Event (5.5” in ~90 min)
- Active City Improvements
 - Targeted Conveyance Improvements
- Detailed Drainage Study (Current Study)

- Process for CIP Project Implementation
 - Screening of Drainage Problems
 - Ranking Severity
 - Prioritizing Projects
 - Funding Projects
- Threshold Screening
 - Structural Flooding for Major Events
 - Street Flooding for Minor Events
- Severity Ranking Method for CIP Projects

Typical Infrastructure Design – Levels of Protection

- 2-Year (50% Annual Chance)
 - Water Surfaces Below Ground for Storm Sewers
 - Water Surfaces Within Banks for Ditches
 - 4.9” of Rainfall over 24-hours
- 10-Year (10% Annual Chance)
 - Water Surfaces Below Top of Curb
 - Ponding Duration Less than 4-hours
- 25-Year (4% Annual Chance)
 - Prevent Structural Inundation
- 100-Year (1% Annual Chance)
 - Overland Flow Contained to Street Right-of-Way(ROW)
 - Prevent Structural Inundation
 - 12.5” of Rainfall over 24-hours
 - Maximum Ponding Elevation Below:
 - 12” Above The Natural Ground or Abutting Lots
 - 9” Above Top of the Street Curb,
 - 12” Below the Lowest Slab Elevation Of Buildings on Abutting Lots

Study Boundary



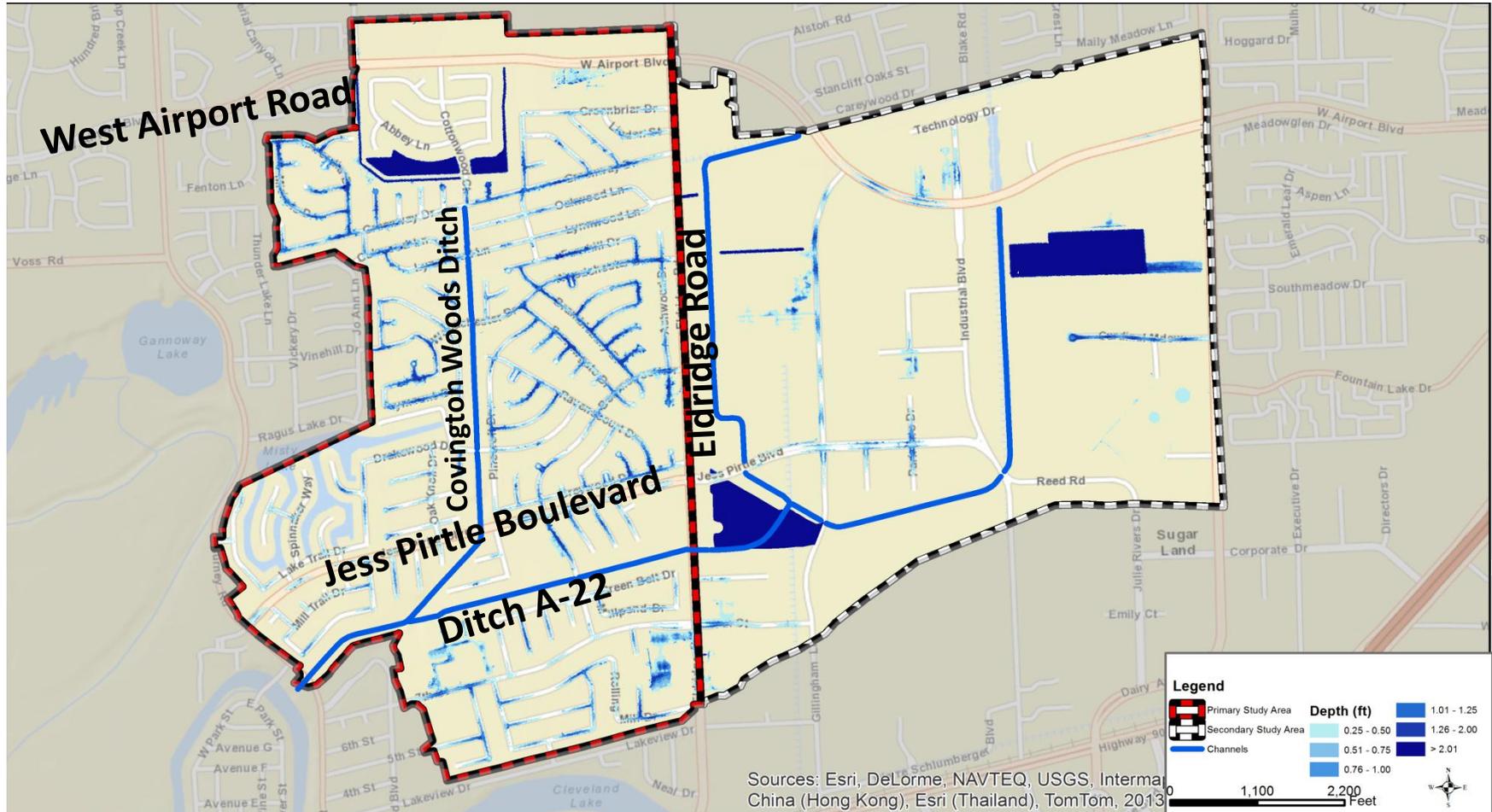
Purpose of Public Meeting

- Review Modeling Results - Existing Conditions
 - April 27, 2013 Storm Event
- Model Validation - Confirm and Discuss
 - Flooding Extents
 - Flooded Structures
 - General Overland Sheet Flow Patterns and Direction
- Capture Resident Information

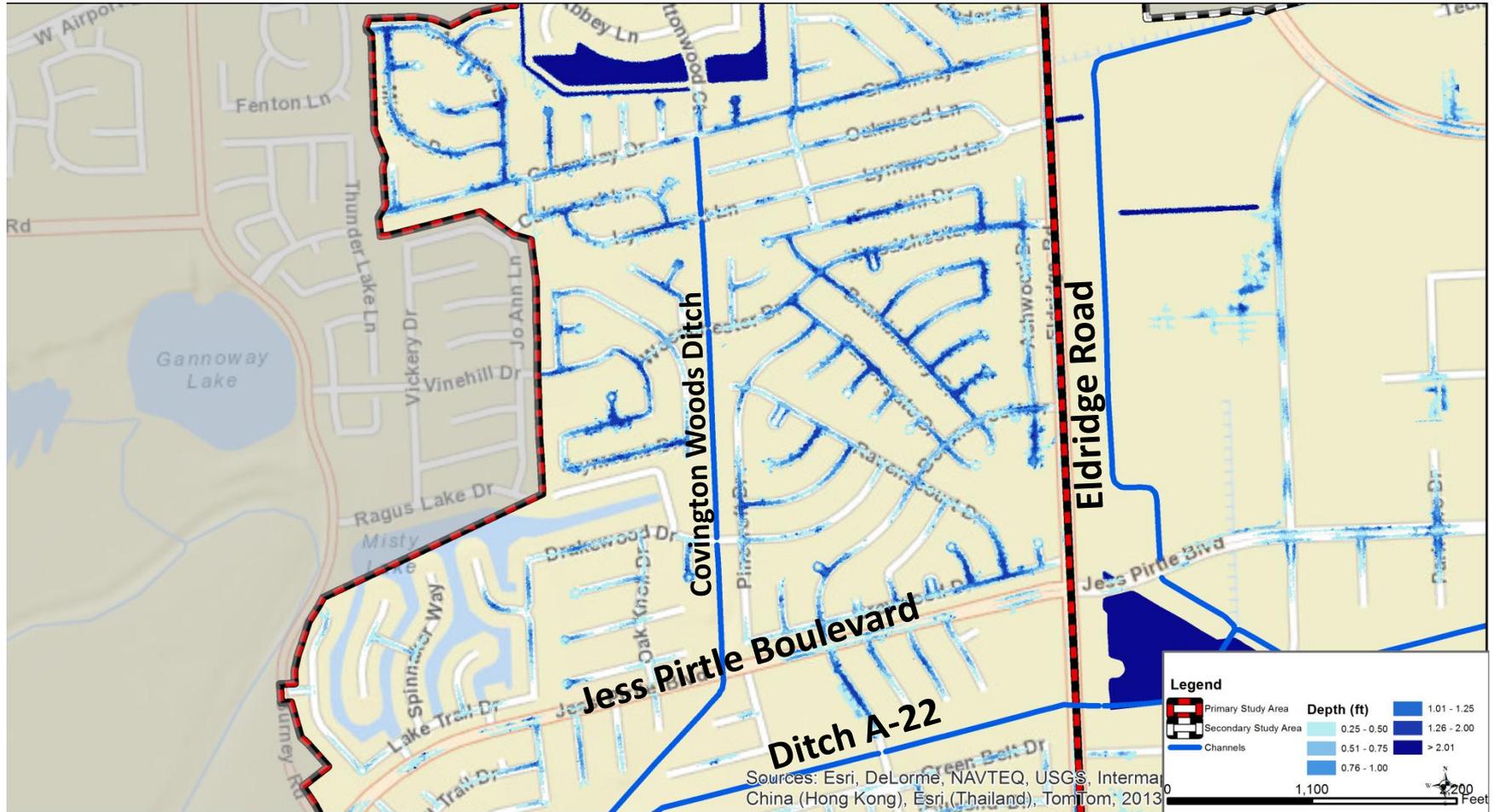
- Data Collection
- Existing Conditions Model
- Validate Model
- Identify System Deficiencies
- Objectively Recommend Improvement Alternatives
 - Benefit/Cost Ratio
 - Homes Removed from Flooding
 - Other Structures Removed from Flooding
 - CIP Project Overlap
 - Constructability
 - Critical Roadways Removed from Flooding
 - Construction Impact to Community
 - Time to Realize Benefits

- Approximately 8” of Rainfall in 2.5 Hours
- Total Rainfall of More than 8.4”
- Beyond Typical Infrastructure Design Criteria
- 10-Year (10%) Storm: 4.2” in 2 Hours or 4.7” in 3 Hours
- 100-Year (1%) Storm: 6.05” in 2 Hours or 6.85” in 3 Hours
- Tropical Storm Allison – Approximately 12”

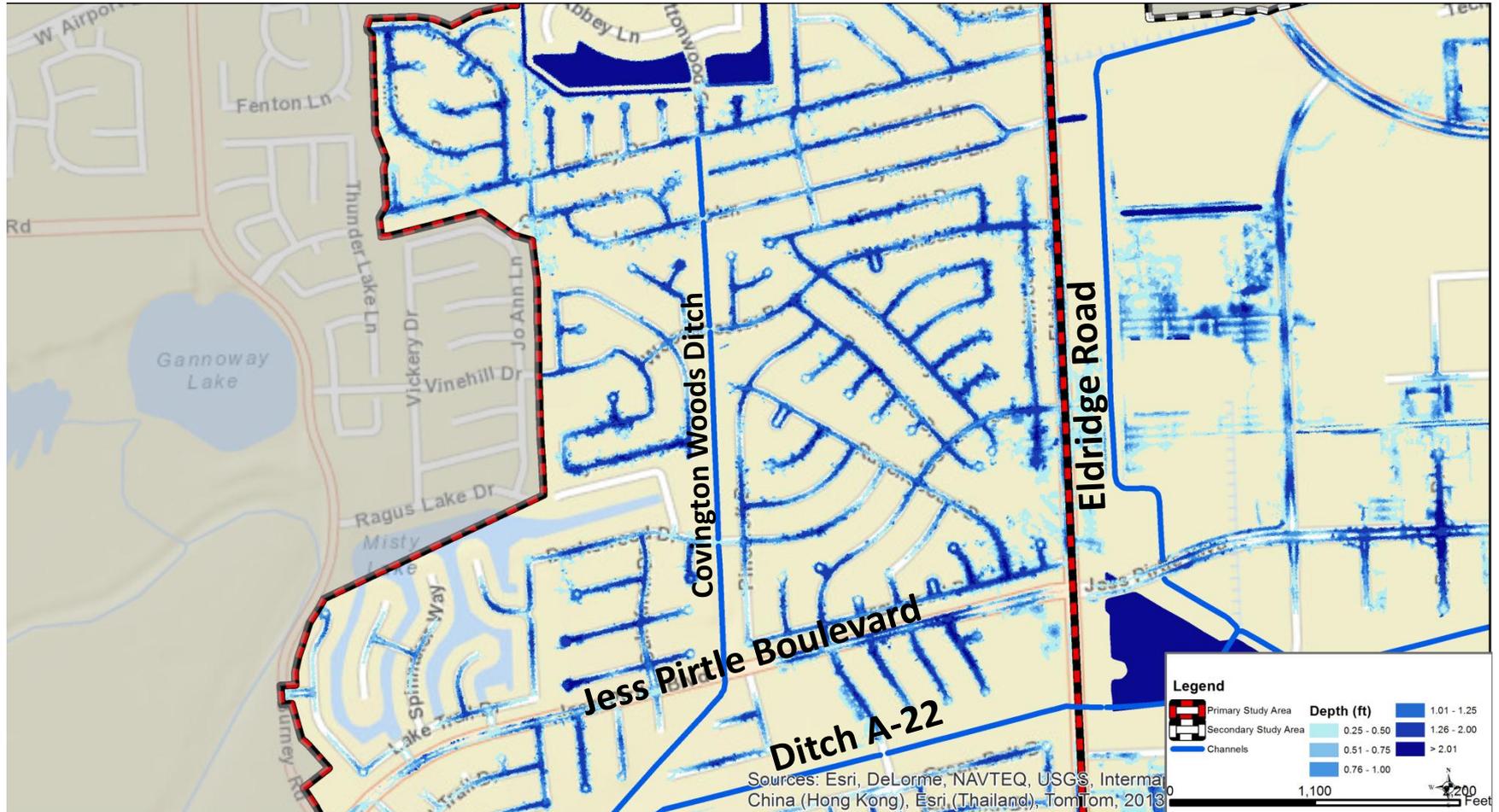
April 2013 Event – Peak Inundation Extents



April 2013 Event – Peak Inundation Extents, CW Focus

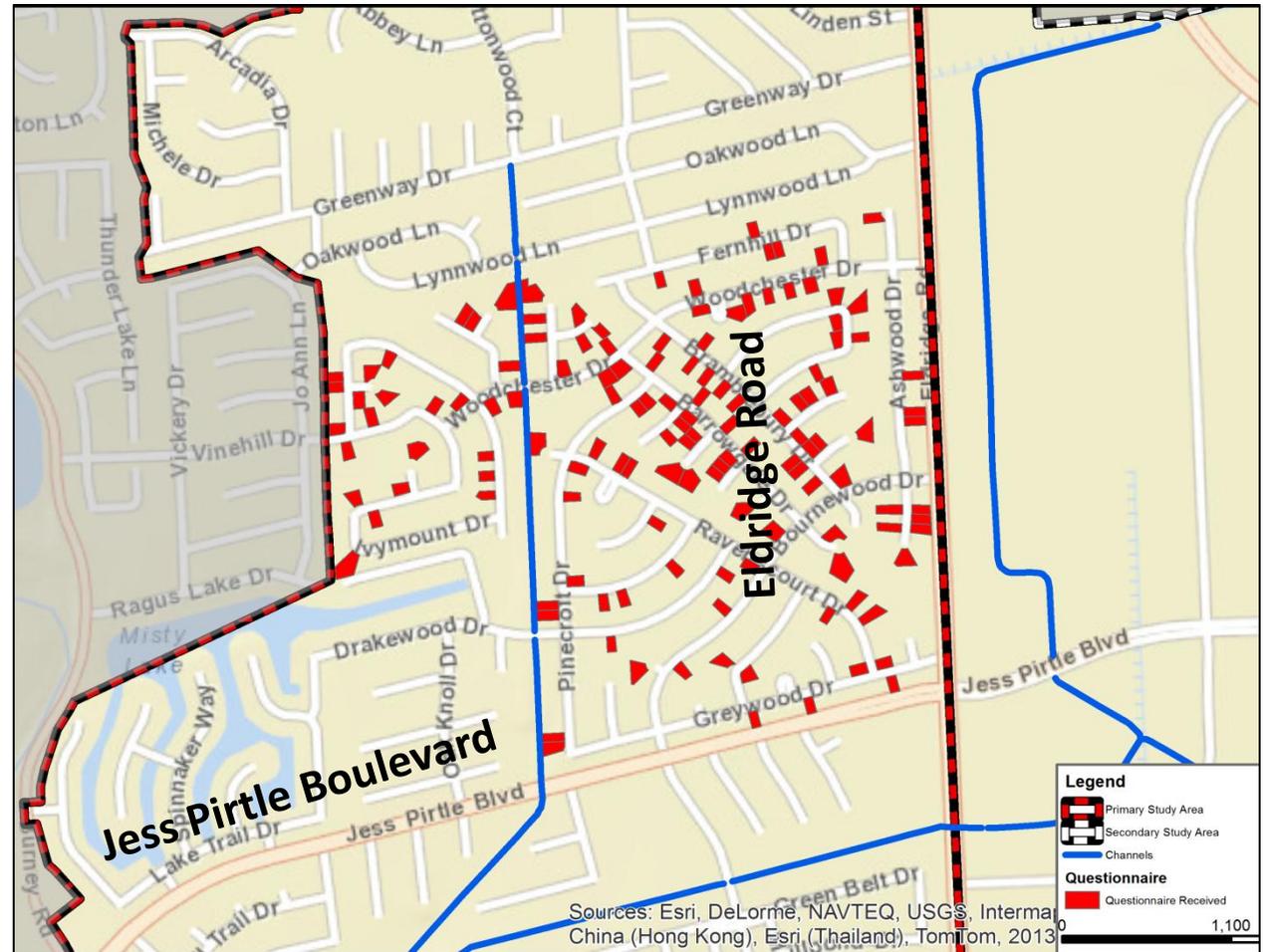


Existing Conditions –100-Year Event Peak Inundation, CW Focus



Drainage Questionnaires Received

- More than 1000 Surveys Mailed
- More than 150 Returned



- Ask Questions About the Study
- Sketch Flooding Issues on Exhibits
- Assist with Validating Model Output

Questions?

<http://www.sugarlandtx.gov/>

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